



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/521,762	01/21/2005	Volker Lohweg	W1.1914 PCT-US	2612

7590 08/04/2008
Douglas R Hanscom
Jones Tullar & Cooper
PO Box 2266
Eads Station
Arlington, VA 22202

EXAMINER

YEH, EUENG NAN

ART UNIT	PAPER NUMBER
----------	--------------

2624

MAIL DATE	DELIVERY MODE
-----------	---------------

08/04/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/521,762	Applicant(s) LOHWEG ET AL.	
	Examiner EUENG-NAN YEH	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 April 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on April 22, 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

FINAL ACTION

Response to Amendment

1. The following Office Action is responsive to the amendment and remarks received on April 22, 2008. Claims 15-36 remain pending.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 15-20, 23-24, and 27-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Swain et al. (International Journal of Computer Vision 7:11, Nov 1991, 11-32), Macfarlane et al. (US 2002/0021444 A1), Shiratani (US 6,950,554 B2), and Baba et al. (US 6,911,963 B2).

Regarding claims 15 and 16, Swain discloses a color image deviation analysis method comprising:
an image sensor; using said image sensor for generating image sensor signals of an image (as figure 1 showed "the output image from a color camera together with a color histogram obtained from the image" at page 13, right column, line 14. The image sensor is a part of the color camera);

Art Unit: 2624

a separate image sensor signal for each of first, second and third separated color channels ("The color axes used for the histograms were the three opponent color axes, defined as follows (Ballard & Brown 1982):

$$rg = r - g$$

$$by = 2 * b - r - g$$

$$wb = r + g + b$$

Here r, g, and b represent red, green, and blue signals, respectively. The rg, by, and wb axes are analogous to the opponent color axes used by the human visual system ..." at page 16, left column, line 1. Thus, the sensor signals are separated to red, green, and blue as first, second and third color channels, respectively. It is noticed that Swain includes the concept of human visual system in his color manipulations);

linking said first color channel image sensor signal with said second color channel image sensor signal using a first calculation specification; generating a first output signal of a first resultant compensation color channel using said first calculation specification linked first and second color channel image sensor signals (discussed above, $rg = r - g$, as the first calculation specification and rg is the first output signal. Thus, Swain's methodology takes human vision into consideration by subtracting the second signal color of green from the first signal color of red to generate the first rg output signal);

linking said third color channel image sensor signal with said first and second color channel image sensor signals using a second calculation specification; generating a second output signal of a second resultant compensation color channel using said

Art Unit: 2624

second calculation specification linked third color channel image sensor signal and said first and second color channel image signals (discussed above, $by = 2 * b - r - g$, as the second calculation specification which links red, green, and blue three channels and the result by is the second output signal);

forming said first resultant compensation color channel corresponding to a red/green receptive field of a human eye (discussed above that the rg, by, and wb axes are analogous to the opponent color axes used by the human visual system. The first output signal rg corresponding to red/green);

forming said second resultant compensation color channel corresponding to a blue/yellow receptive field of a human eye (discussed above that the rg, by, and wb axes are analogous to the opponent color axes used by the human visual system. The second output signal by corresponding to blue/yellow);

Swain does not explicitly disclose the weighting factors, i.e. a weighted difference between said second color channel image sensor signal and said first color channel image sensor signal. Furthermore, Swain does not explicitly teach the classification, i.e. classifying said first and said second output signals of said first and second compensation color channels, and minimum value selection, i.e. a minimum one of the first color channel image sensor signal and the second color channel image sensor signal as stated in claim 16.

Macfarlane, in the same field of endeavor of color measurement system ("evaluating the color of skin, teeth, hair and material substances with a Color Index" in paragraph 5, line 2), teaches weighting factors for the reflectance spectrum as

described in Table 1 in paragraph 46. “In accordance with the principles of this invention, the Color Index is measured and calculated from the reflectance spectrum of any skin (or teeth, hair or material substance) by a two step process. The first step is the weighting of the visible spectra with a unique set of weighting factors which calculate the contribution of the reflectance spectrum of any skin (or teeth, hair or material substance) to the appearance of four opponent colors, i.e., red-green and yellow-blue” in paragraph 15, line 1. See also “weighting of said reflectance spectrum with weighting factors corresponding to four color components that form two opponent pairs of color components wherein said weighting factors are used to calculate said sample's reflectance spectrum's contribution to said four color components' appearance; and determining individual contributions corresponding to each of said four color components and calculating said Color Index ...” in paragraph 21, line 1. And “means for weighting of said reflectance spectra with weighting factors corresponding to four color components that form two opponent pairs of color components wherein said weighting factors are used to calculate said sample's reflectance spectrum's contribution to said four color components' appearance” in paragraph 27, line 1. Furthermore, “evaluating the color of skin, teeth, hair and material substances with a Color Index that is independent of the illuminating condition” in paragraph 12, line 2.

It would have been obvious at the time the invention was made to one of ordinary skill in the art to include the color image deviation analysis method Swain made with weighting factors applicable to the channel image signals as taught by Macfarlane, not only to provide color signals “independent of the illuminating condition” in paragraph 12,

line 4, but also can be used to generate weighted difference for the first and second calculation specifications "...corresponding to four color components that form two opponent pairs of color components ..." in paragraph 27, line 2.

The Swain and Macfarlane combination does not explicitly teach the classification and minimum value selection.

Shiratani, in the field of endeavor of image classification ("classifying a plurality of images on a predetermined reference" at column 4, line 13), teaches the classification process as depicted in figure 1, numerals 107 and 108 "section 107 extracts the feature such as color, shape texture or the like from the designated region" at column 9, line 18; "reference numeral 108 denotes a learning section of a classification parameter for adjusting parameters in the system so that the set of feature data can be classified ..." at column 7, line 46. Without departing from the scope and spirit of Shiratani's methodology, the color as the feature extracted can be the said first and said second output signals to be used for classification.

It would have been obvious at the time the invention was made to one of ordinary skill in the art to include the color image deviation analysis method of the Swain and Macfarlane combination, with classification technique as taught by Shiratani so the output signals can be properly classified.

The combination of Swain, Macfarlane, and Shiratani does not explicitly teach the concept of minimum value selection between first and second colors as stated in claim 16.

Baba, in the field of endeavor of color image display (“relates to a field-sequential color display unit and display method” at column 1, line 15), teaches color display: “display colors of the primary color signals may include red, green and blue, and the display color of the non-three-primary color picture signal may be any one of white, cyan, magenta and yellow which are generated from the at least two primary color signals. The non-three-primary color signal displayed in the sub-field period may be determined on the basis of a part of the input image information in one frame period” at column 4, line 4. And “The non-three-primary color signal generator may include a signal separating circuit separating the three-primary color signals from the input picture signal, and generate the non-three-primary color signal from the three-primary color signals separated by the signal separating circuit” at column 5, line 1. As depicted in figure 5, numeral 16: “...three-primary color signals are inputted to the signal separating circuit 16 to prepare a W signal by the minimum value of the R, G and B signals, a Y signal by the minimum value of the R and G signals ...” at column 11, line 1. With the W, Y, M, and C color used “... non three-primary color picture signals, the color difference there between being smaller than the color difference between the three-primary color picture signals R, G and B, and the intensities of the three-primary color picture signals R, G and B decrease, so that it is difficult for the observer to perceive color breakup” at column 12, line 8.

It would have been obvious at the time the invention was made to one of ordinary skill in the art to include the color image deviation analysis method of the Swain, Macfarlane, and Shiratani combination, with the Y signal selection between the

minimum value of the R and G signals as taught by Baba, in order to “reducing the color breakup of an optical image” at column 3, line 50, and “...it is difficult for the observer to perceive color breakup” at column 12, line 12.

Regarding claims 17 and 18, said first, second, and third color channels corresponding to the basic colors of an RGB model wherein R is red, G is green and B is blue (discussed in claims 15 and 16, the sensor signals are separated to red, green, and blue as first, second and third color channels, respectively).

Regarding claims 19 and 20, said first, second and third color channels with adaptable spectral sensitivity (discussed in claims 15 and 16, the three color channels are red, green, and blue, respectively. And the three opponent color axes are rg, by, and wb which are analogous to the opponent color axes used by the human visual system).

Regarding claims 23 and 24, weighting each of said first, second and third color channel image sensor signals with a coefficient (discussed in claims 15 and 16, weighting factors applied to each color channel image sensor signal).

Regarding claims 27 and 28, providing a learning mode and an inspection mode (depicted in Shiratani figure 2a the learning step and figure 2b the classification step);

forming reference data values of at least one reference image using said first and second compensation color channels (discussed in claims 15 and 16, said first and said second output signals of said first and second compensation color channels are classified. As depicted in Shiratani figure 2a, numeral ST108: “the classification parameter learning section 108, a feature vector is prepared from the extracted feature and a classification parameter is learned and determined so that the feature parameter can be classified in accordance with the teacher signal (step ST108)” at column 9, line 21. Thus, the reference data values are formed. Furthermore, “a learning type image classification apparatus which is capable of classifying a plurality of images” at column 4, line 12);

storing said reference data values in a reference data memory (as depicted in Shiratani figure 1, numeral 113);

forming inspection images as inspection output signals using said first and second compensation color channels (discussed in claims 15 and 16, said first and said second output signals of said first and second compensation color channels are used for image processing. As depicted in Shiratani figure 2b, steps ST109 to ST112 to form the inspection images);

comparing said inspection output signals with said reference data values in said reference data memory pixel by pixel (depicted in Shiratani figure 2b, steps ST113 “the feature vector of each region is classified by using a classification parameter which has been learned and the category determination section 111 determines to which category the region belongs (step ST113)” at column 9, line 53. Furthermore, “the learning type

Art Unit: 2624

image classification program which is executed at each section is recorded on the recording medium 113 (*figure 1*)” at column 9, line 62. The region is clipped by user or automatically performed by the system, “... provided a region clipping mode selection section ...” at column 10, line 51. And the clipped region can also be as small as a pixel for pixel-by-pixel processing).

Regarding claims 29 and 30, a classification system for comparing said inspection output signals with said reference data values (discussed in claims 27 and 28, said inspection output signals were compared with said reference data values for classification).

Regarding claims 31 and 32, selecting said classification system from linear and non/linear classification systems including threshold value classifiers, Euclidian distance classifiers, Bayes classifiers, fuzzy classifiers and artificial neuron networks (“...as a result of the learning of the classification parameter, for example, at a kohonen type neural net, the neuron element corresponds to a representative vector in the vector quantization so that the neuron element is set in a state in which a label representing the classification category name is added to this representative vector ...” at Shiratani column 9, line 30).

4. Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Swain, Macfarlane, Shiratani, and Baba as applied to claims 15 and 16 discussed above, and further in view of Yamaguchi (US 5, 268,753).

Regarding claims 21 and 22, the combination of Swain, Macfarlane, Shiratani, and Baba does not teach a non-linear transformation.

Yamaguchi, in the field of endeavor of color image forming ("reproducing on an image output medium a color image corresponding to an original color image formed on an image input medium" at column 1, line 10), teaches that "In the case where the image input gamut is thus inconsistent with the image output gamut, colors reproduced on the output medium are made different from colors of the original image which has been formed on the input medium, as a result of which color-reproducibility of the image forming apparatus is degraded" at column 2, line 3. Furthermore, "to correct such a color-inconsistency and improve the color-reproducibility of the image forming apparatus, a color-compression processing is generally conducted before the above-described color-proofing" at column 2, line 15. As depicted in figure 4, steps S1 to S7 "... the three primary color component signals are converted into values of CIE-L*a*b* color system in a step S1 ..." at column 9, line 17. Equations 1-3 are three non-linear transformation for L*a*b* colorimetric system.

It would have been obvious at the time the invention was made to one of ordinary skill in the art to include the color image deviation analysis method of the Swain, Macfarlane, Shiratani, and Baba combination, with non-linear transformation as taught

by Yamaguchi, in order "to correct such a color-inconsistency and improve the color-reproducibility" at column 2, line 15.

5. Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Swain, Macfarlane, Shiratani, and Baba as applied to claims 15 and 16 discussed above, and further in view of Shimura et al. (US 6,486,981 B1).

Regarding claims 25 and 26, the combination of Swain, Macfarlane, Shiratani, and Baba does not teach a low pass filter.

Shimura, in the field of endeavor of color image processing ("color image processing method and apparatus capable of coding and storing color image data" at column 1, line 11), teaches a way to sampling the color image by changing the sampling rate as depicted in figure 6, numerals 85 and 86 for Cb and Cr components: "... input data is subject to the sub-sampling in the sub-sampling units 85 and 86 at the sub-sampling ratio Y:Cb:Cr=4:2:2 ..." at column 8, line 24. This means that the chrominance components Cb and Cr of the pixel data are in half resolution relative to the luminance component Y in a horizontal direction of the image since the human visual system is less sensitive to chrominance than luminance. Furthermore, "uniform color space such as CIE 1976 L*a*b* or CIE 1976 L*u*v* can be employed as the color space besides the YCrCb space described above" at column 11, line 34.

It would have been obvious at the time the invention was made to one of ordinary skill in the art to include the color image deviation analysis method of the Swain, Macfarlane, Shiratani, and Baba combination, with low pass filter technique as taught by

Shimura to take advantage of the fact that human visual system is less sensitive to chrominance than luminance. By so doing, the data space can be saved and the processing speed increases.

6. Claims 33 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Swain, Macfarlane, Shiratani, and Baba as applied to claims 15 and 16 discussed above, and further in view of Buzuloiu et al. (US 6,751,348 B2).

Regarding claims 33 and 34, the combination of Swain, Macfarlane, Shiratani, and Baba teaches that plurality of images used: “a learning type image classification apparatus which is capable of classifying a plurality of images” at Shiratani column 4, line 12. The combination of Swain, Macfarlane, Shiratani and Baba does not explicitly disclose the tolerance window.

Buzuloiu, in the field of endeavor of image detection (“pixels of a questionable image are compared with a color reference database” at column 1, line 9), teaches a way to identify the color as depicted in figure 1, numerals 16-18: “block 16, color detection begins by sampling pixels from a questionable image, the reception of which is indicated by input 17, and compares the color of each sampled pixel with the colors in the color prototype database. When a pixel is found to match a color in the color prototype database, a texture analysis is performed in an area around the questionable pixel (block 18). If the area around the pixel is uniform in color within a pre-determined variance, the area is considered to be potentially skin ...” at column 3, line 42. Without

departing from the scope and spirit of Buzuloiu's methodology, the variance can be used as the tolerance window.

It would have been obvious at the time the invention was made to one of ordinary skill in the art to include the color image deviation analysis method of the Swain, Macfarlane, Shiratani, and Baba combination, with tolerance window as taught by Buzuloiu, to determine the color or "the variance of the surrounding pixels is used as a measure of skin texture" at Buzuloiu column 3, line 57.

7. Claims 35 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Swain, Macfarlane, Shiratani, and Baba as applied to claims 15 and 16 discussed above, and further in view of Harrington et al. (EP 0 473 432 B1).

Regarding claims 35 and 36, the combination of Swain, Macfarlane, Shiratani, and Baba teaches a method to detect color image deviation. The combination of Swain, Macfarlane, Shiratani, and Baba does not explicitly disclose the image as print images.

Harrington, in the field of endeavor of color printing ("highlight color printing which preserves information important to the viewer" at page 2, line 4), teaches the application of print image with "mapping of full color images to highlight color images in which information important to the viewer is preserved" at page 2, line 54.

It would have been obvious at the time the invention was made to one of ordinary skill in the art to apply the color image deviation analysis method of the Swain,

Macfarlane, Shiratani, and Baba combination, to the color printing as taught by Harrington, in order “preserves information important to the viewer” at page 2, line 4.

Response to Arguments

a) Summary of Applicant's Remark:

The previous drawing and specification objections should be withdrawn in view of the amendment.

Examiner's Response:

Examiner agrees, and the previous objections are withdrawn.

b) Summary of Applicant's Remark:

“objectives of the Swain publication are admirable, they are not relevant to the subject invention” at response page 13, line 18.

“The assertion in the Office Action, at page 4 thereof that Swain shows "... linking said first color channel image sensor signal with said second color channel image sensor signal using a first calculation specification..." is not supported by any teaching in the Swain article. Instead, the article discusses the use of "color axes" in the histograms, as recited at the top left of page 16” at response page 14, line 13.

Examiner's Response:

In response to applicant's argument that Swain et al. (International Journal of Computer Vision 7:11, Nov 1991, 11-32) is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Swain suggests primary color, r, g, and b, manipulation to generate three opponent color axes, namely color pairs of red/green $rg=r-g$, blue/yellow $by=2*b-r-g$, and white/black $wb=r+g+b$, "...are analogous to the opponent color axes used by the human visual system ..." at Swain page 16, left column, line 8. Thus, Swain's application is reasonably pertinent to the particular problem with which the applicant was concerned, i.e. "... color channels are formed corresponding to color receptive fields of the human eye ..." at response page 13, line 1, and "... two receptive fields, representing the second stage of color processing in human vision, are simulated by an appropriate linkage of the image sensor signals of the three color channels ... the red/green field of human color perception represents the first compensation color channel ... the blue/yellow field corresponds to the second compensation color channel ..." at specification page 6, line 11.

c) Summary of Applicant's Remark:

"At page 5 of the Office Action, it is stated that Swain does not expressly disclose "...weighing factors..." It is also recited that Swain "... does not explicitly teach the

Art Unit: 2624

clarification and minimum selection." Since those terms do not appear in the language of claims 15 and 16, it is unclear what relevance their absence from the Swain reference has to the situation at hand" at response page 15, line 16.

Examiner's Response:

Swain does not explicitly disclose the weighting factors, i.e. a weighted difference between said second color channel image sensor signal and said first color channel image sensor signal as stated in claims 15 and 16. Furthermore, Swain does not explicitly teach the classification, i.e. classifying said first and said second output signals of said first and second compensation color channels as stated in claims 15 and 16, and minimum value selection, i.e. a minimum one of the first color channel image sensor signal and the second color channel image sensor signal as stated in claim 16. Refer to the rejections above for further discussion.

d) Summary of Applicant's Remark:

"Merely because Macfarlane recites the use of "weighting factors" for calculating the contributions to the appearance of redness or yellowness or greenness or blueness, by the reflective spectrum of the skin does not make its teachings relevant to the subject invention. Again, the importation into the rejection of language from the claims sought to be rejected does not support an assertion that the relied-on reference actually includes, suggests or discloses the claim language. This is again the situation with the Macfarlane reference" at response page 16, line 25.

Examiner's Response:

“...weighting of the visible spectra with a unique set of weighting factors which calculate the contribution of the reflectance spectrum of any skin (or teeth, hair or material substance) to the appearance of four opponent colors, i.e., red-green and yellow-blue ...” in Macfarlane paragraph 15, line 1. Thus, the visible spectra weighting factors will affect the appearance of the image which is reasonably pertinent to the particular problem with which the applicant was concerned: color receptive fields of the human eye.

e) Summary of Applicant's Remark:

“Shiratani has nothing to do with the analyses of color deviations of images. Instead, this document is directed to image classification based on clipping or selecting a particular region of a plurality of objects for classification of the objects” at response page 17, line 15.

Examiner's Response:

“a learning type image classification apparatus which is capable of classifying a plurality of images on a predetermined reference ...” at Shiratani column 4, line 11. See also “the apparatus is operated at least at the learning step and at the classification step ...” at Shiratani column 4, line 24. Thus, the image classification methodology is reasonably pertinent to the particular problem with which the applicant was concerned: classifying said first and said second output signals as stated in claims 15 and 16.

f) Summary of Applicant's Remark:

"Merely because a document recites the words "red," "blue," and "green" does not make it relevant to the subject invention. The statement that Baba recites "reducing the color breakup of an optical image" has no bearing, either direct or indirect on the field of endeavor to which the subject invention is directed or to the specific method recited in currently amended claims 15 and 16" at response page 18, line 1.

Examiner's Response:

Refer to the discussion of claim 16 for the determination of minimum value of R, G, and B signals for non primary colors W, Y, M, and C "... non three-primary color picture signals, the color difference there between being smaller than the color difference between the three-primary color picture signals R, G and B, and the intensities of the three-primary color picture signals R, G and B decrease, so that it is difficult for the observer to perceive color breakup" at column 12, line 8. For the less of perceiving color breakup means improve visual pleasure and improve human color perception quality which is reasonably pertinent to the particular problem with which the applicant was concerned: color receptive fields of the human eye.

Conclusion

8. Applicant's amendment is rejected in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eueng-nan Yeh whose telephone number is 571-270-1586. The examiner can normally be reached on Monday-Friday 8AM-4:30PM EDT.

10. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikkram Bali can be reached on 571-272-7415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

Art Unit: 2624

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Eueng-nan Yeh
Assistant Patent Examiner
Art Unit: 2624
/E.Y./

/Vikkram Bali/
Supervisory Patent Examiner, Art Unit 2624